

Work Order ID 69676

Monday, May 16, 2011 9:26:13 AM



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Item ID:	D6104-005	Accept		Setup	Start	
Revision ID:					Stop	
Item Name:	Round Billet, 17-4					
Start Date:	5/16/2011	Start Qty:	15.00		Cust Item ID:	
Required Date:	5/23/2011	Req'd Qty:	15.00		Customer:	
Reference:						

Approvals:	Process Plan:	<u>CL</u>	Date:	<u>11/05/16</u>	Tooling:		Date:		Run	Start	
	QC:		Date:		SPC (Y/N):		Date:			Stop	

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
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Draw Nbr	Revision Nbr
D6104	Rev B

100		0.00							
	PURCHASING								

Purchasing	Memo	0.00							
Purchasing	Issue P/O: <u>14107</u> □a)Description: S.S round billet □b) Ø4.00" x 5.10" long □c) Tolerance on all dimensions are +0.030"/-0.000" □d) Material: 17-4PH Stainless steel (Ams 5643 or Aisi 630) □e)One blank makes 2 parts □f) Material certification required								

110		0.00							
	Receive & Inspect for Damage & Mat'l Certs								

Packaging	Memo	0.00							
Packaging	Ensure material certification is attached								

120		0.00							
	QC6- Inspect dimensions to drawing								

QC	Memo	0.00							
Quality Control	Ensure Material certification comply to Dwg D6104								

CL 11/05/17 15

11/05/27 15

11/05/27

15

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____






NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			



NOTE: Date & initial all entries



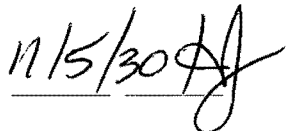
Work Order ID 69676

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Monday, May 16, 2011 9:26:13 AM

Item ID: D6104-005 Accept  Setup Start 
Revision ID:
Item Name: Round Billet, 17-4 Stop 
Start Date: 5/16/2011 Start Qty: 15.00  Cust Item ID:
Required Date: 5/23/2011 Req'd Qty: 15.00  Customer:
Reference:

Approvals: Process Plan: _____ Date: _____ Tooling: _____ Date: _____ Run Start 
QC: _____ Date: _____ SPC (Y/N): _____ Date: _____ Stop 

Sequence ID/ Work Center ID	Operation Description	Set Up/ Run Hours	Tool ID	Tool #	Plan Code	Accept Qty	Reject Qty	Reject Number	Insp. Stamp
130  Packaging Packaging	Identify as per dwg & Stock Location: <u>MAT</u> Memo	0.00 0.00		<u>11/05/27</u>		<u>15</u>	<u>0</u>		
140  QC Quality Control	QC21- Final Inspection - Work Order Release Memo	0.00 0.00							<u>11/5/30</u>  <u>MF</u> <u>11-05-27</u>

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Picklist Print

Monday, May 16, 2011 9:26:10 AM

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Work Order ID: 69676



Parent Item: D6104-005



Parent Item Name: Round Billet, 17-4



Start Date: 5/16/2011

Required Date: 5/23/2011

Start Qty: 15.00

Required Qty: 15.00

Comments: IPP A: 001.05.08 New Issue EC

Component Item ID/ Item Name	Replacement Item ID	Mfg/ Purch	Bin Item	Primary Location	Last Location	Route Seq ID	Unit of Measure	Qty on Hand	Qty per Kit	Total Qty	Qty Issued	Date Issued	Status
D6104-005P  17-4 SS Roundbar 4.00"OD		Purchased	No			110	Each	0.0000	1 	15		<i>Pur 5/27 15</i>	

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

Resolution: _____ Disposition: _____ QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

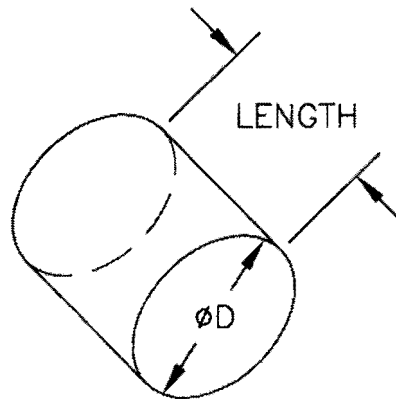


DESIGN RT	DRAWN BY 	DART AEROSPACE LTD HAWKESBURY, ONTARIO, CANADA	
CHECKED 	APPROVED 	DRAWING NO. D6104	Rev. B SHEET 1 OF 1
DATE 02.11.25		TITLE ROUND BILLET, 17-4	SCALE NTS
A	01.04.10	NEW ISSUE	
B	02.11.25	CLARIFY ALLOY SPEC ADDED D6104-009/-011 REDUCE LENGTH OF BILLETS	

RELEASED

02.11.29

SPECIFICATION CONTROL DRAWING



CX11105116
W10.69676

MATERIAL: 17-4 PH SS (AMS 5643 OR AISI 630) MIN UTS = 170 KSI (38 HRC)

PURCHASE MATERIAL ACCORDING TO THE FOLLOWING TABLE. SPECIFY ALLOY, DIAMETER x LENGTH (+0.030/-0.000) AS SHOWN.

TOLERANCE ON ALL DIMENSIONS IS +0.030/-0.000.

ALL DIMENSIONS ARE IN INCHES

Part No.	Alloy	D (Diameter)	Length
D6104-001	17-4 PH STAINLESS STEEL	Ø3.00	3.80
D6104-003	17-4 PH STAINLESS STEEL	Ø3.25	3.80
D6104-005	17-4 PH STAINLESS STEEL	Ø4.00	5.10
D6104-007	17-4 PH STAINLESS STEEL	Ø4.50	5.10
D6104-009	17-4 PH STAINLESS STEEL	Ø5.25	4.10
D6104-011	17-4 PH STAINLESS STEEL	Ø6.50	4.10

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Dart Aerospace Ltd.
1270 Aberdeen Street
Hawkesbury, ON K6A 1K7
Tel: 613 632 9577
Fax: 613 632 1053

PURCHASE ORDER

Purchase Order ID PO14107

Purchase Order Date 5/17/2011

PO Print Date 5/17/2011

Page Number 2 of 3

Order From : VC-MET001
METAUX CASTLE
J.M. CASTLE & CO. (CANADA) INC. - BOX B9204 PO BOX 9100
TORONTO, ON M4Y 3A5
A

Contact Name	Buyer	Chantal Lavoie
Order Phone	Requisition Nbr	
Order Fax	Tax Resale Nbr	10127-2607
Order Account Nbr	Terms	Net 30
	Currency	CAD
	FOB	Destination-Collect

D6101-003P	7075-T7351 2X6.25X7.875	5/20/2011	20.00	Yours ppd	\$59.1600	\$1,183.20
		Yes	Each			

Special Inst: AS PER DWG D6101 REV. B
B69678
MATERIAL: 7075-T7351 AS PER QQ-A-
250/12
SIZE: 7.875" X 6.250" X 2.00" THICK
GRAIN DIRECTION ALONG 7.875"
LENGTH
TOLERANCE ON LENGTH ARE +0.030" /
+/-0.000"

D6101-003P	7075-T7351 2X6.25X7.875	6/1/2011	5.00	Yours ppd	\$59.1600	\$295.80
		Yes	Each			

Special Inst: AS PER DWG D6101 REV. B
B69701
MATERIAL: 7075-T7351 AS PER QQ-A-
250/12
SIZE: 7.875" X 6.250" X 2.00" THICK
GRAIN DIRECTION ALONG 7.875"
LENGTH
TOLERANCE ON LENGTH ARE +0.030" /
+/-0.000"

D6104-005P	17-4 SS Roundbar 4.00"OD	5/31/2011	15.00	Yours ppd	\$78.8000	\$1,182.00
		Yes	Each			

MATERIAL CERTIFICATION
REQ'D UPON DELIVERY

No substitution or deviation without
consent.
Certificate of Conformity or Material
Certification required when applicable

Change Nbr: 1

Change Date: 5/17/2011

**Castle Metals®**

A. M. Castle & Co.

PACKING SLIP

Page 1 of 1

Shipment No:826279

Ship From: Castle Metals MONTREAL 835-SELKIRK AVENUE POINTE CLAIRE, QUEBEC H9R 3S2		Sold To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Ship To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7		Deliver To: DART AEROSPACE LTD 1270 ABERDEEN HAWKESBURY, ON K6A 1K7 CA	
Date Shipped 25-MAY-11	F.O.B. ORIGIN	Freight Terms Prepaid		Carrier MANITOULIN		BOL No 826279-2	

Shipment Details	Final Destination Branch - MON
-------------------------	---------------------------------------

Order No 1476076	Line No 3	Item No 42464.MO	Description 4.0000.RD.17CR-4NI.STAINLESS.RT.SOL TR.COND A.132.0000-156.0000 CUT TO 5.1 IN (+ .1250/- .0000 IN) - BAND SAW CUTTING SPECIFICATIONS: AMS 5643		
Purchase Order No 14107		Part Number YOUR ITEM NUMBER: D6104-005		Ordered Qty 15 PCS	Invoice Qty 15 PCS

Details							
Delivery No. 80618340	Mill	Heat Number 7YK1	Mech Id	PCS 15	Width (IN)	Length (IN)	Shipped Qty (LBS) 280.94

These commodities/technologies are subject to US Export Administration & US State Dept. Regulations and, if intended for export, were/are exported thereunder. Diversion contrary to US Law is Prohibited.

We hereby certify the material covered by this certification conforms in accordance with the above specifications and has been found to meet the applicable requirements for the material, including any specifications forming a part of the description. Test reports are on file subject to examination. All claims for defective material are waived unless made in writing to A.M. Castle & Co. within 60 days of the shipment. Material cut to the correct size, or material cut by the customer cannot be returned for credit.

Reviewed by Authorized Castle Metals Representative:	Date:
-------------------------------------------------------------	--------------

Castle Metals FP

HEAT NUMBER 7YK1
MECHANICAL ID _____
ITEM CODE 42464
LOT NUMBER _____
PO NUMBER 88655
RECEIPT DATE 3-8-2011
SUPPLIER NAS
SPECIFICATION _____
LCS 120
COMMENT _____
APPROVED BL



**NORTH AMERICAN
STAINLESS**

METALLURGICAL TEST REPORT

6870 Highway 42 East
Ghent, KY 41045-9615
(502) 347-6000

Certificate: 624694 04

Mail To:

A.M. CASTLE AND COMPANY
3400 NORTH WOLF ROAD
FRANKLIN PARK IL 60131

Ship To:

A.M. CASTLE AND COMPANY
3400 NORTH WOLF ROAD
FRANKLIN PARK IL 60131

Date: 3/01/2011 Page: 1 Of 1

Steel: 630(17-4)

Finish: Hot Finish

Dia/Thk: 4.0000 in

Leg Length:

Length: 144.00 in

Corrosion:

Customer: 0032 001

NAS Order: LN 69062 2

Your Order: 88655

Item Code: 42464

PRODUCT DESCRIPTION:

AMS 2303E, AMS 5643R
Round Bar, Hot Rolled, Annealed, Rough Turned
UNS S17400; EN 10204 3.1B, ASTM A484/08
ASTM A564/04 ASME SA564-07

REMARKS:

COMPLIES W/REQUIREMENTS OF DFARS EU DIRECTIVE 2002.95.
EC. RoHS. EAF+AOD+CC. NO WELD REPAIR. MELTED AND MFG IN USA
FREE FROM MERCURY AND LOW MELTING ALLOY CONTAMINATION

Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight	Bundle Weight
BD58410	1536								

CHEMICAL ANALYSIS CM(Country of Melt) ES(Spain) US(United States) ZA(South Africa) JP(Japan)

Heat	Supplier #	CM	C	CB	CO	CR	CU	MN	MO	N	NI	P
7YK1		US	.037	.230	.08	15.16	3.20	.56	.12	.038	4.34	.025
			S	SI	TA	TI						
			.0091	.58	.0050	.0020						

MECHANICAL PROPERTIES

	l o c a l	HB No.	Ferr %	TS-C KSI	YS-C KSI	El-C %	RA-C %	RC-C No.	FREQ No.	SEV. No.
BD58410	R L	341.0	.40	207.75	183.99	13.38	47.19	42.0	.04	.02

NAS hereby certifies that the analysis on this certification is correct and the material meets the specifications stated.

QC ENGINEER

ERIC HESS

